Non Final Rejection

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/10/2008 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,3, 5, 6,11,14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. (U.S. Patent Number 6,311,819) in view of Keller (U.S. Patent Number 4,015,703).

1. Referring to claim 1, 5 and 6. Stromme et al. discloses an apparatus 10 for handling sheets 20, comprising,

a sheet transfer member (223) being movable, and having a transfer surface that is contactable with one of the sheets (20) so that the sheet (20) is transferred by the sheet transfer member (223) (Figure 4, Col. 5 lines 49-60),

a sheet supporting surface area (including 211 and 240; Figure 2 and 4) being contactable with one of the sheets (20) transferred by the sheet transfer member (223) (Col. 5 lines 23-30), said sheet supporting surface (including 211 and 240; Figure 2 and 4) extending to be contactable with the one of the sheet (20; see Figure 4 sheet in contact with 240) between the transfer surface and the information reading point (247), and

Information reader (reading sensors) arranged in the evaluation region (247) to face one of the sheets (20) transferred by the sheet transfer member (223), the sensors in the evaluation region (247) securely read information in their information reading range as the sheet (20) proceeds through the information reading point (Col. 5 line 59, Col. 6 line 37, Col. 13 lines 50-60)

wherein as seen in a view direction perpendicular to a thickness direction (see Figure 4) of the one of the sheets (20) and a transferred direction (direction to the left and see in Figure 4) of the one of the sheets (20) transferred by the sheet transfer member (223),

the sheets are ejected into the evaluation region 247 in a tangential line, after leaving the boundary point (nip point between the member 223 and 250) of the transfer surface on the transfer member 223 from which the sheet 20 starts to separate away

from the transfer surface in a straight line above the guide member 240 and passing through the information evaluation region 247.

wherein the one of the sheet transferred (20; Figure 4) by the sheet transfer member (223) is substantially planar (see Figure 4) with the sheet supporting surface (including 211 and 240; Figure 2 and 4) area when in contact therewith.

Stromme et al. does not disclose the sheet 200 separating away from the path of an imaginary straight line passing through the information reading point.

Keller discloses a sheet material transport system with the ability to vary the input feeding and output angles of the media sheet B. The sheet B is ejected by the sheet transfer member 3 at a boundary point 7 in a straight tangential line path 17 intersecting the sheet guides 22. As the sheet B proceeds on the tangential line path 17, it begins to separate away from the tangential path into the sensor detection area enclosed by the guide members 22 (Figure 2, enlarged view). The tangential line 17 is prevented from extending parallel to the imaginary straight line 8.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to control the interior ejection angle such that the sheet could be bent or driven in a particular direction to allow for the sheet to be positioned in a location that maximizes the ability to detect the required sheet properties by the sensors in the detection region as suggested by the teachings of Keller. As a result a more accurate information reading can be obtained by controlling the position of the sheet with respect to the detection devices.

2. Referring to claim 3. Stromme et al. discloses an apparatus 10 for handling sheets 20, which consists of a sheet supporting surface 211, 240 area extending to be contactable with a sheet 20 between the transfer surface and the information reading point in the evaluation region 247 (Figure 4, Col. 4 line 49). The sheet supporting surface 211, 240 extends and guides the sheet 20 to the information evaluation region 247 by the means of the sheet transfer members 223 and 241.

3. Referring to claim 11. Stromme et al. discloses the sheet transfer member 223, 241 and the sheet pressing members 250, 251 are rollers disposed on a rotational axis (Figure 4).

4. Referring to claim 14. Stromme et al. discloses using various types of sensors in the evaluation region 247 depending on the particular application and need of the device (Col. 13 line 50). Stromme et al. also teaches of using a pair of input sensors disposed in an opposed manner such that, the input face of the respective sides of the sheet can be detected by the sensors placed on each side (Col. 14 line 52, not shown in drawing).

5. Referring to claim 24. Regarding claim 13, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Stromme et al. and dispose a blower 10 in the detection region at taught by Keller. Keller teaches the addition of a blower 10 applying a pneumatic pressure to the sheet in

a manner to urge the sheet by pneumatic pressure toward the sheet supporting guides 22 (Figure 4, Col 4. lines 50-60). By using a pneumatic blower the position of the sheet as it travels from a sheet transfer member is further controlled.

6. Referring to claim 7. See claim rejections above. Stromme et al. discloses a supplemental sheet transfer member 241 being movable and having a supplemental transfer surface contactable with one of the sheets 20 so that the sheet 20 is transferred by the supplemental sheet transfer member 241. A tangential line of a boundary point (nip point between the member 223 and 250) of the transfer surface of the first sheet transfer member 223 where the sheet starts to separate away from the transfer surface of the sheet, runs through the boundary point (nip point between the member 241 and 251) of the supplemental sheet transfer member (Figure 4).

Stromme et al. does not disclose the tangential boundary point lines of the supplement sheet transfer member 241 and the sheet transfer member 223 as intersecting.

Keller discloses the two tangential boundary lines 17, 16' from each sheet transfer member 3, 3' to be intersecting in the sensor detection area in between the guides 22. Keller also teaches, sheet B at one of the boundary points 7, 6' starts out in the beginning to separate away from the supplemental sheet transfer member 3' and then starts to curve back to initiate contact with the supplemental sheet transfer member 3'.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to position the sheet in a location that maximizes the ability to detect the required sheet properties by the sensors and then curve the sheet back toward the supplemental sheet transfer member to continue moving through the information reading area as suggested by the teachings of Keller. As a result, more accurate information reading can be obtained by controlling the position of the sheet with respect to the detection devices.

Referring to claim 8 and 9. See claim rejections above. Stromme et al. discloses a sheet transfer member 223 and a supplemental sheet transfer member 241 having transfer surfaces contactable with the one face of the sheet 20 to allow the sheet 20 to be transferred. In addition a first and a second sheet press members 250, 251 being opposed to the sheet transfer members 223, 241 in such a manner that one of the sheets 20 is allowed to be pressed between the sheet transfer member 223 and the sheet press member 250 in a first direction (toward the elevation region), and pressing a sheet 20 between the supplementary sheet transfer member 241 and the second press member 251 in a second direction (Figure 4).

wherein the one of the sheet transferred (20; Figure 4) by the sheet transfer member (223) is substantially planar (see Figure 4) with the sheet supporting surface (including 211 and 240; Figure 2 and 4) area when in contact therewith.

Stromme et al. does not disclose the first and the second press directions intersecting with each other.

Keller discloses the embodiment as stated in previous claims with sheet transfer members 3,3' disposed in an opposing manner to the sheet pressing members 2,2' to press the sheets in a first and a second directions 17,16' that intersect with each other in a view direction and are perpendicular to the thickness direction 15,15' of the sheet at the boundary point 7, 6' as the sheet are transferred.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to dispose the sheet transfer members at an angle resulting in the ability to direct the sheets being ejected from the transfer members in a particular direction towards the detection region as suggested by the teachings of Keller. As a result, sending the sheet to a particular location in the detection region with greater accuracy.

7. Referring to claim 15. See claim 8, 9 and 10. In regards to claim 15, Keller discloses a angle β (applicant uses α) as the inclination angle between the support line 9 direction and a tangential line 15 of a boundary point 7 of the transfer surface of the sheet transfer member from which the sheet starts to separate away from the transfer surface. In addition a D distance is clearly shown between the axis 13, 13' of the two sheet transfer members and as a result the distance from one boundary point 7 to the center of the information evaluation area is inherently D/2 between the to sheet transfer members. Keller also shows a separation distance between the two sheet supporting surface areas 22 that can be characterized by a variable as well. It is understood that the friction coefficient between one of the sheet and the transfer surface of the sheet

transfer member will be based on the inherent material properties of the sheet and the surface of the roller in addition to the force that is applied to the roller to transfer the sheet, thus this interaction at the boundary point 7, 6' as shown by Keller can be derived as a single relationship. Keller also discloses a method of varying the boundary point sheet input angle by varying angle β' and α' (angles β and α have a similar configuration but not shown in drawings) by the means of the adjustable slots 26 and 27.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stromme et al. with the teachings as disclosed by Keller to incorporate a coefficient friction that exists between the sheet transfer surface and the sheet itself and deduce a range of effective α angles that can be used determine the maximum and minimum α without stalling the sheet transfer members as the sheet is fed to the boundary point, such a selection would be well within the level of skill of an artisan.

8. Claim 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. in view of Keller and further in view of Winkler (U.S. Patent Number 4,993,700).

9. Referring to claim 12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize rotatable belts as the sheet transfer members in a annular course as taught by Winkler in Figure 1 member 32 and 50, such a selection would be well within the level of skill of an artisan.

10. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. in view of Keller as applied to claim 4 above, and further in view of Tschudin-Mahrer (U.S. Patent Number 4,837,064).

11. Referring to claim 10. See claim 8. In regards to claim 10, Tschudin-Mahrer discloses a roller member 1 composed of elastic material that molds around the body that it is in contact with as is shown in Figure 3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Stromme et al. and Keller with the teaching of Tschudin-Mahrer and replace the sheet transfer members 223, 241 (Strommer) with a member composed of elastic material that deforms during contact with the sheet pressing members 250, 251. As the elastic material deforms during contact with the sheet pressing members the boundary point is moved further out away from the line perpendicular 15,15' (Keller) to the thickness of the sheet, as a result of using elastic material for the sheet transfer member the contact area between the transfer member and the sheet is increased.

12. Claim 17-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. in view of Keller and further in view of Steiner (U.S. Patent Number 3,966,047).

13. Referring to claims 17-20. See claim 1. Stromme et al. discloses an apparatus 10 for handling sheets 20, comprising of movable sheet transfer members 223 disposed on either sides of the information gathering region.

Stromme et al. does not discloses a supplemental sheet supporting surface member roller disposed in a movable manner with respect to the opposing sheet supporting surface area.

Steiner discloses a supplemental sheet supporting surface member 64 that is disposed in a curved path, in a movable manner, contactable with the sheets as they are transferred by the sheet transfer member 58. As the sheet moves toward the center of the sensor region, roller 64 engages the sheet and urges it forward to the supplemental sheet transfer member 92. In addition, the roller member 64 is also able to move in a perpendicular direction to the flow path of the sheet, engage and disengage the sheets they proceeds through the sensor region (Figure 1, Col 2 line 50-60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stromme et al. in view of Keller and add an additional supplemental sheet supporting surface member 64 as taught by Steiner to provide a better grip of the sheet as the sheet proceeds through the sensor region.

14. Claims 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. in view of Keller and further in view of Fox et al. (U.S. Patent Number 5,486,063)

15. Referring to claims 21. Stromme et al. discloses optical sensors comprising and emitter and receiver can be used to detect physical properties such as the reflectivity, optical transmission and other properties that that can be used to detect information as a sheet is transferred through the evaluation region 247 (Col. 13 line 56, Col. 14 line 45).

Stromme et al. does not disclose using a distance detector to detect the distance of the sheet from the position of the sensor optical sensor.

Fox et al. teaches of using a pair of sensors to detect the distance of the material as it pass beneath the evaluation region. Fox et al. also disclose the need to vary the intensity of the transmitted beam to compensate for the transmission of the beam absorption.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stromme et al. in view of Keller with the teaching of Fox et al. and use a sensor mechanism that first detects the distance between an optical sensor and the position of the sheet and then in response vary the intensity of the beam transmitting sensor with the respect to the distance between the sheet and the optical sensor to obtain a more accurate information reading from the sheet.

Allowable Subject Matter

Claim16 allowed.

Response to Arguments

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's arguments filed 02/11/2008 have been fully considered but they are not persuasive. See modified rejections above.

Applicant's arguments filed 07/05/2007 have been fully considered but they are not persuasive for reasons detailed below.

The Applicant argues "Stromme does not appear to disclose an information reader including an information reading range and an information reading point" on page 12, line 9 on arguments filed 01/12/2006. The Office directs the Applicants attention to Stromme (Col. 13 lines 50+) wherein an evaluation region (247; Figure 4) comprises "different types of sensors" depending on a number of variables based on the needs of a users, furthermore Stromme discloses sensors that can be disposed in the evaluation region for authenticating, counting, discriminating a particular characteristic of the sheet such as the size, color, magnetism, reflectivity, absorbability, transmissivity and the electrical conductivity of a passing sheet. The Office relies on any one of the aforementioned sensors as an *information reader* further, it is generally understood that all sensors have a particular *reading range* and that reading range of gathering information acts at particular *information reading point* to gather the required

information, which is generally described by Stromme as the evaluation region the apparatus as the sheet (20) passes underneath region (247; Figure 4).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAKESH KUMAR whose telephone number is (571)272-8314. The examiner can normally be reached on 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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